Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01– 31 December 2002

Accomplishments (during reporting period):

PPL and NSTAR reached an agreement to enable interconnection of the fuel cell. The reverse power relay to be installed will control the fuel cell output and prevent power export from the fuel cell to the grid when the grid is offline. This stipulation is required for the safety of NSTAR equipment and personnel. Cost of the relay installation is Approximately $60,000.

Upcoming Activities (for next monthly period):

1. Complete shop testing of the fuel cell. (See discussion below)

2. RDC to continue development of web site and kiosk

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 (Completed)
Begin DHW Tank & Transformer Installation	16 Aug 2002 (Completed)
Fuel Cell Fabricated, Tested, & Delivered	**14 Mar 2003**
Complete Fuel Cell Power Plant Installation	**28 Mar 2003**
Startup & Acceptance Testing	**11 April 2003**
Fuel Cell Accepted & On Line	**25 April 2003**
Commence First Year of Operation	**26 April 2003**
Tentative “Ribbon Cutting” Ceremony	**May/June**

Outlook (general comments on overall "health" of project and upcoming challenges):

1. Fuel Cell Status – Preliminary testing of the fuel cell designated for delivery to the USCG has been completed. The fuel cell did not perform as anticipated during the testing, prompting an in-house design review. Based on the results of the review, the delivery schedule has been extended to ensure continuous operation at 250 kW through the incorporation of the latest design improvements to the power plant. The delivery date has been revised to reflect the new timeframe.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01– 30 November 2002

Accomplishments (during reporting period):

The electrical contractor has completed installation of the transformer and related switching gear. Nearly all site work that can be conducted prior to installation of the actual fuel cell is complete. See attached photos.

Upcoming Activities (for next monthly period):

2. Complete shop testing of the fuel cell.

3. Prepare fuel cell for shipment to ASCC. Scheduled shipping date is Monday January 6th.

4. Finalize scope of work for NSTAR interconnect relay.

4. RDC to continue development of web site and kiosk

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 (Completed)
Begin DHW Tank & Transformer Installation	16 Aug 2002 (Completed)
Fuel Cell Fabricated, Tested, & Delivered	**06 Jan 2003**
Complete Fuel Cell Power Plant Installation	**20 Jan 2003**
Startup & Acceptance Testing	**21 Jan 2003**
Fuel Cell Accepted & On Line	**03 Feb 2003**
Commence First Year of Operation	**04 Feb 2003**
Tentative “Ribbon Cutting” Ceremony	**Late February/March**

Outlook (general comments on overall "health" of project and upcoming challenges):

2. Schedule – Minor schedule changes to allow for shipping the fuel cell after the holidays. Various state road restrictions prohibit extra wide loads on the highways during the holiday season.

2. NSTAR Requirements – PPL & NSTAR are finalizing the scope of work to install a reverse power relay at the grid interconnect. The reverse power relay will control the fuel cell output and prevent power export from the fuel cell to the grid when the grid is offline. This stipulation is required for the safety of NSTAR equipment and personnel

Photos:

Figure 1 Making piping connections to Heat Exchanger

Figure 2 Bollards have been installed and pad is nearly ready.

Figure 3 Red circulating pump connects heat exchanger to hot water tank.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01– 31 October 2002

Accomplishments (during reporting period):

Design changes and modifications identified in the September report have been completed and testing has recommenced. The schedule remains unchanged.

The electrical contractor is on site working on installation of the transformer and related switching gear.

Upcoming Activities (for next monthly period):

5. Continue shop testing of the fuel cell.

6. PPL Savage and Fuel Cell Energy engineers will obtain final approval from NSTAR to connect to the utility grid.

3. RDC to continue development of web site and kiosk.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 (Completed)
Begin DHW Tank & Transformer Installation	16 Aug 2002 (Completed)
Fuel Cell Fabricated, Tested, & Delivered	15 Dec 2002
Complete Fuel Cell Power Plant Installation	31 Dec 2002
Startup & Acceptance Testing	02 Jan 2003
Fuel Cell Accepted & On Line	16 Jan 2003
Commence First Year of Operation	17 Jan 2003
Tentative “Ribbon Cutting” Ceremony	Late February

Outlook (general comments on overall "health" of project and upcoming challenges):

3. Schedule – The schedule remains unchanged this month.

2. NSTAR Requirements – NSTAR has provided its response and requirements for connection of the fuel cell with the grid. PPL has developed several potential options for meeting the NSTAR requirements and will speaking with NSTAR staff in early November to select the appropriate installation option.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01– 30 September 2002

Accomplishments (during reporting period):

The DHW Tank and temporary boiler have been installed.

Testing of the Fuel Cell continued during September. Unfortunately, the results of several tests conducted at the end of the month were outside of expected parameters. An analysis of the cause of the results has prompted minor design revisions to the stack module.

An on-site meeting regarding the proposed "ribbon cutting" ceremony was held at ASCC.

Upcoming Activities (for next monthly period):

7. Complete design modifications and continue shop testing of the fuel cell.

8. PPL Savage and Fuel Cell Energy engineers will obtain final approval from NSTAR to connect to the utility grid.

3. RDC to continue development of web site and kiosk.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 (Completed)
Begin DHW Tank & Transformer Installation	16 Aug 2002 (**Completed**)
Fuel Cell Fabricated, Tested, & Delivered	**15 Dec 2002**
Complete Fuel Cell Power Plant Installation	**31 Dec 2002**
Startup & Acceptance Testing	**02 Jan 2003**
Fuel Cell Accepted & On Line	**16 Jan 2003**
Commence First Year of Operation	**17 Jan 2003**
Tentative "Ribbon Cutting" Ceremony	**Late February**

Outlook (general comments on overall "health" of project and upcoming challenges):

4. Schedule – The fuel cell testing will continue once the stack module modifications and reinstallation are completed. Several of the previously conducted tests will need to be re-run in order to validate the prior results and to confirm the effectiveness of the modifications. Approximately 30 days of previously non-conducted testing remain in addition to the re-tests. Given the above, the fuel cell is now expected to ship from FCE to ASCC in mid-December.

2. NSTAR Requirements – PPL has provided all requisite/requested information to NSTAR regarding the fuel cell. PPL will obtain NSTAR's final approval/response by the end of October.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01– 31 August 2002

Accomplishments (during reporting period):

Minor design changes were implemented to the fuel cell as a result of data collected during initial testing of the ASCC fuel cell and testing of a similar Fuel Cell. Installation of the design modifications resulted in a change to the fuel cell delivery schedule as listed below.

The transformer installation has been completed. DHW Tank and temporary boiler arrived in anticipation of installation.

A very productive on site meeting was held at FCE in Danbury, CT on Tuesday, August 27th with FCE, PPL, MTPC, and the USCG, to discuss the project's current status and remaining issues, such as delivery, maintenance, and marketing, and to provide newly assigned project personnel with the opportunity to tour FCE's facility and view the fuel cell. A picture of the fuel cell and the USCG staff taken during the facility tour is included below.

Upcoming Activities (for next monthly period):

9. Complete installation of the Domestic Hot Water (DHW) Tank. Remaining site related equipment and materials arrived the last week of August and are being installed.

10. PPL Savage and Fuel Cell Energy engineers are awaiting final approval from NSTAR to connect to the utility grid.

3. FCE commenced final shop testing of the Fuel Cell on August 28. Testing will continue throughout September.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 (Completed)
Begin DHW Tank & Transformer Installation	16 Aug 2002 **(Underway)**
Fuel Cell Fabricated, Tested, & Delivered	**04 Nov 2002**
Complete Fuel Cell Power Plant Installation	**15 Nov 2002**
Startup & Acceptance Testing	**18 Nov 2002**
Fuel Cell Accepted & On Line	**01 Dec 2002**
Commence First Year of Operation	**02 Dec 2002**
Tentative "Ribbon Cutting" Ceremony	**10 Dec 2002**

Outlook (general comments on overall "health" of project and upcoming challenges):

5. Schedule – The fuel cell testing is underway, and will consume most of September and October. The Fuel Cell is currently scheduled to ship from FCE on or about October 31st.

2. NSTAR Requirements – PPL has provided all requisite/requested information to NSTAR regarding the fuel cell. NSTAR has not yet responded with their approval to connect to the grid. PPL will keep the CG and other parties apprised of the situation. If NSTAR has not responded by the middle of the month, a conference call or meeting with PPL, FCE, NSTAR, CG, and other parties will be initiated to expedite resolution of this issue.

Photos: A recent picture from the onsite meeting with the CG team and the ASCC fuel cell in the rear left.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 June 2002 – 31 July 2002

Accomplishments (during reporting period):

Mid-June – The initial site work was completed at Airsta Cape Cod. See attached photo.

Upcoming Activities (for next monthly period):

11. Installation of the Domestic Hot Water (DHW) Tank and transformer will commence on or about August 16th. PPL's intent is to coordinate completion of the DHW/transformer work with arrival of the fuel cell in September to avoid multiple mobilizations of the construction crews.

12. PPL Savage and Fuel Cell Energy engineers continue dialogue with NSTAR engineers to ensure that fuel cell performance characteristics and operating parameters are understood. NSTAR must determine the minimum requirements for connection to the utility grid.

3. FCE will commence final shop testing of the Fuel Cell on or about 12 August. An invitation to visit FCE and observe the testing will be forwarded to all involved parties.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002 **(Completed)**
Begin DHW Tank & Transformer Installation	16 Aug 2002
Fuel Cell Fabricated, Tested, & Delivered	20 Sep 2002
Complete Fuel Cell Power Plant Installation	30 Sep 2002
Startup & Acceptance Testing	03 Oct 2002
Fuel Cell Accepted & On Line	18 Oct 2002
Commence First Year of Operation	19 Oct 2002

Outlook (general comments on overall "health" of project and upcoming challenges):

6. Schedule – No changes to schedule this month!

2. Management – LCDR Chris Lund (860) 441-2806 has taken over as COTR effective July 22.

3. NSTAR Requirements – PPL has provided all requisite/requested information to NSTAR regarding the fuel cell. NSTAR has not yet responded with their approval to connect to the grid. PPL will keep the CG and other parties apprised of the situation. If NSTAR has not responded by the middle of the month, a conference call or meeting with PPL, FCE, NSTAR, CG, and other parties will be initiated to expedite resolution of this issue.

Photos: A recent picture showing the installation site.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 May 2002 – 31 May 2002

Accomplishments (during reporting period):

Early May – The optional contract line items that allow for completion of the fuel cell fabrication and installation were awarded to PPL. These line items will be paid for by the grants from Keyspan, MA Trust, and DOE as well as CG funds.

All month - Millenium Builders continued with site work throughout the month of May. Items completed: concrete pad for the fuel cell, install most pipe/conduit, bollard supports, and heat exchanger placed on pad. Work pretty much progressed on schedule and no problems were reported.

Upcoming Activities (for next monthly period):

13. Initial site work phase should be completed by mid-June. No other work will be done on the ASCC site until late August.

14. PPL Savage and Fuel Cell Energy engineers continue dialogue with NSTAR engineers to ensure that fuel cell performance characteristics and operating parameters are understood. NSTAR must determine the minimum requirements for connection to the utility grid.

3. CG and PPL managers may make site visit to FCE plant in Danbury to check progress of fuel cell fabrication. This visit was originally considered for May, but it was decided it made more sense to hold off until fuel cell production was further along.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	13 Jun 2002
Begin DHW Tank & Transformer Installation	16 Aug 2002
Fuel Cell Fabricated, Tested, & Delivered	20 Sep 2002
Complete Fuel Cell Power Plant Installation	30 Sep 2002
Startup & Acceptance Testing	03 Oct 2002
Fuel Cell Accepted & On Line	18 Oct 2002
Commence First Year of Operation	19 Oct 2002

Outlook (general comments on overall "health" of project and upcoming challenges):

7. Schedule – No changes to schedule this month!

2. Management – Dr. Steve Allen (860-441-2731) will take over as COTR starting June 1 and remain in that position until a permanent replacement arrives at the R&D Center in late July.

3. NSTAR Requirements – The only unsolved "piece of the puzzle" is what the electric utility (NSTAR) will require for hooking the fuel cell into the grid. Project managers have been working for months to try and get this information for months, but have not been successful in getting NSTAR to make this project a priority. A conference call between PPL, FCE, Keyspan, MA Trust, and the CG may be necessary to discuss the best way to handle this issue.

Photos: Some recent pictures showing progress on the fuel cell and the installation site.

Heat recovery unit on concrete pad.

Conduit trench – slab to barracks.

Fuel Cell “Balance of Plant” at Danbury, CT.

Conduit trench – slab to transformer.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 Apr 2002 – 30 Apr 2002

Accomplishments (during reporting period):

9 Apr – Conference call held between PPL Spectrum and R&D Center. The status of the project was discussed, and an updated fuel cell delivery date of 20 Sep 2002 was provided by PPL. Fuel Cell Energy is confident that this delivery date can be met, so the project schedule was adjusted accordingly (see Project Schedule section).

18 Apr – All installation design deliverables (specification, updated drawings, construction cost estimate) were received and accepted by the CG contracting officer.

19 Apr – The R&D Center initiated the paperwork to execute the optional contract line items which allow PPL to complete the fuel cell fabrication and installation / start up. These line items will be paid for by the grants from Keyspan, MA Trust, and DOE as well as CG funds.

25 Apr – Meeting held at AIRSTA Cape Cod to discuss site preparation work that will begin next week. Millenium Builders will be performing the work for PPL, and this first phase of the installation is expected to last 6 or 7 weeks. Dave Cleveland will act as on site inspector for the CG.

29 Apr – Millenium Builders mobilized and site work commenced at AIRSTA Cape Cod.

Upcoming Activities (for next monthly period):

15. Millenium Builders continue with site work throughout the month of May. Work items include pouring concrete pads for the fuel cell and transformer, dig trenches and lay pipe/conduit, place bollard supports, erect wood fence around transformer pad, and install the gas line.

16. PPL Savage and Fuel Cell Energy engineers continue dialogue with NSTAR engineers to ensure that fuel cell performance characteristics and operating parameters are understood. NSTAR must determine the minimum requirements for connection to the utility grid.

3. CG and PPL managers may make site visit to FCE plant in Danbury to check progress of fuel cell fabrication.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	18 Apr 2002 (Completed)
Commence Site Preparation (slab, piping, etc)	29 Apr 2002 (Completed)
Finish Site Preparation Work	**13 Jun 2002**
Begin DHW Tank & Transformer Installation	**16 Aug 2002**
Fuel Cell Fabricated, Tested, & Delivered	**20 Sep 2002**
Complete Fuel Cell Power Plant Installation	**30 Sep 2002**
Startup & Acceptance Testing	**03 Oct 2002**
Fuel Cell Accepted & On Line	**18 Oct 2002**
Commence First Year of Operation	**19 Oct 2002**

Outlook (general comments on overall "health" of project and upcoming challenges):

8. Schedule – The latest schedule reflects a "firm" delivery date from Fuel Cell Energy. Status reports received in late April from PPL indicate that fuel cell production is on track. The stack assembly should be completed by June and sent to Danbury for testing and integration with the "balance of plant" which is already there.

2. Management – The incumbent CG project manager and contract COTR is leaving the R&D Center at the end of May and a permanent replacement will not arrive until late July. The R&D Center will assign a temporary COTR to ensure there is no gap in CG technical support during this transition.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 Mar 2002 – 31 Mar 2002

Accomplishments (during reporting period):

7 Mar – The final design review meeting was held at Air Station Cape Cod. Representatives from PPL Spectrum, PPL Savage Alert, Millenium Builders, Fuel Cell Energy, Mass Tech Collaborative, NSTAR, and the Coast Guard (ASCC, CEU Providence, R&D Center) were in attendance. The final set of fuel cell installation drawings was reviewed and approved. The design specifications were not reviewed, but were to be sent via e-mail to CG project managers following the meeting. NSTAR's involvement and the utility interconnection were discussed. Fuel Cell Energy announced that the fuel cell would not be delivered until late summer/early fall. PPL and Millenium Builders plan to mobilize to begin the preliminary site work around the 3rd week of April.

24 Mar – The funds transfer of $200K was received by the R&D Center and placed in the project account. All CG funding, promised for FY02, is available for use on the contract.

28 Mar – A new contract schedule was received from PPL Spectrum that shows a fuel cell delivery date of Aug 28, 2002. See the Project Schedule section for other milestones.

Upcoming Activities (for next monthly period):

17. Receive installation specification and updated cost estimate from PPL. These design deliverables are still outstanding.

18. Millenium Builders will mobilize and begin preliminary site work. Construction activities will be coordinated directly with ASCC Facilities Engineering.

19. PPL Savage Alert engineers to continue working with NSTAR engineers to ensure that fuel cell performance characteristics and operating parameters are understood. NSTAR must determine the minimum requirements for connection to the utility grid.

20. Contract line items 4 and 5 will be awarded after the design has been completed. Performance periods must be modified to reflect the delayed fuel cell delivery.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be in **bold type**.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	07 Mar 2002 (Completed)
Final Design Complete	**12 Apr 2002**
Commence Site Preparation (slab, piping, etc)	**22 Apr 2002**
Finish Site Preparation	**21 Jun 2002**
Fuel Cell Fabricated, Tested, & Delivered	**28 Aug 2002**
Begin Fuel Cell Installation	**29 Aug 2002**
Complete Fuel Cell Installation	**18 Sep 2002**
Startup & Acceptance Testing	**19 Sep 2002**
Fuel Cell Accepted & On Line	**02 Oct 2002**
Commence First Year of Operation	**01 Oct 2003**

Outlook (general comments on overall "health" of project and upcoming challenges):

9. Schedule – The current schedule is based on a fuel cell delivery date of 28 Aug 02. The preliminary site work should be completed approximately 2 months before the fuel cell arrives. This schedule should allow for plenty of time to work out the utility hookup requirements with NSTAR.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 Feb 2002 – 28 Feb 2002

Accomplishments (during reporting period):

4 Feb – PPL proposed a solution for disposing of the fuel cell wastewater by routing the drain line into an existing nearby sewer manhole. This proposal was reviewed and eventually accepted by the CG.

15 Feb – The CGHQ Energy Manager initiated a funds transfer of $200K. These funds will be sent to the R&D Center for use on the fuel cell contract.

19 Feb – PPL met with the FuelCell Energy (FCE) management team to review the fuel cell production schedule and the impact from the explosion in January. FCE cannot provide a firm delivery schedule until their tape casting operation is fully restored, but they did state that delivery would not occur before June 1, 2002.

28 Feb – The R&D Center executed contract modifications for replacing the DHW tank and re-routing the drain line. PPL will incorporate these changes into the final fuel cell installation design.

Upcoming Activities (for next monthly period):

21. A final design review meeting has been scheduled for March 7 at Air Station Cape Cod. The schedule for preliminary site work and the fuel cell installation will also be discussed.

22. Work with NSTAR on utility connection requirements. Determine if NSTAR will support or if additional funding required.

23. All FY02 CG funding should be transferred into the project account so that it is available for use on the contract.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be highlighted.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Review Meeting	**07 Mar 2002**
Final Design Complete	**12 Mar 2002**
Commence Site Preparation (slab, piping, etc)	18 Apr 2002
Finish Site Preparation	19 May 2002
Fuel Cell Fabricated, Tested, & Delivered	**07 Jun 2002**
Begin Fuel Cell Installation	**10 Jun 2002**
Complete Fuel Cell Installation	**29 Jun 2002**
Startup & Acceptance Testing	**08 Jul 2002**
Fuel Cell Accepted & On Line	**29 Jul 2002**
Commence First Year of Operation	**30 Ju1 2002**

Outlook (general comments on overall "health" of project and upcoming challenges):

10. Schedule – The schedule for remaining milestones will remain in a state of flux until FCE can provide a firm delivery date for the fuel cell. The dates currently shown are estimated based on delivery in early June. It is likely that preliminary site work will be completed several weeks before the fuel cell arrives, which will require PPL and sub-contractors to re-mobilize (consistent with the original installation plan).

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 01 Jan 2002 – 31 Jan 2002

Accomplishments (during reporting period):

14 Jan – An explosion occurred at Fuel Cell Energy's plant in Torrington, CT. Some workers were injured and a machine that makes parts for fuel cell stack assemblies was damaged. This event could have an impact on production of the CG fuel cell.

15 Jan – PPL delivers final electrical design drawings and fuel cell information to NSTAR engineers. NSTAR will study the drawings, and determine what exactly is required by the utility to integrate the fuel cell into the existing electrical grid. NSTAR's effort should take approximately 2 weeks.

16 Jan – PPL validated their proposal for replacing the existing DHW tank (in Bldg 3159), and the final amount of $46,960 was accepted by the CG. Managers at CGHQ and CEU Providence determined that energy funds were available to incorporate this work into the fuel cell contract. CEU Providence initiated a work order that transfers the necessary funds to the R&D Center.

16 Jan – PPL's original design for handling of the fuel cell wastewater was not accepted by the CG. The Contracting Officer requested a proposal from PPL on an alternative solution for disposing of the fuel cell wastewater. An engineer from PPL Savage visited ASCC during the week of 21 Jan to investigate possible alternatives.

29 Jan – FY02 funding commitments for the fuel cell project were obtained from the CGHQ Energy Manager and the R&D Center. The level of funding is enough to cover the remaining contract line items, but does not leave much for any contingencies.

Upcoming Activities (for next monthly period):

24. A contract modification will be issued to add the DHW tank replacement to the scope of work.

25. Try to resolve wastewater disposal issue as quickly as possible. This will include reaching an agreement on an acceptable engineering solution, and then finding the funding to implement.

26. Work with NSTAR on utility connection requirements. Determine if NSTAR will support or if additional funding required.

27. Determine impact of explosion in Fuel Cell Energy plant on the fuel cell production schedule.

28. Hope to have all FY02 CG funding transferred into the project account so that it is available for use on the contract.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be highlighted.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Complete	**28 Feb 2002**
Commence Site Preparation (slab, piping, etc)	**18 Apr 2002**
Fuel Cell Fabricated, Tested, & Delivered	**17 May 2002**
Finish Site Preparation	**19 May 2002**
Begin Fuel Cell Installation	**19 May 2002**
Complete Fuel Cell Installation	**01 Jun 2002**
Startup & Acceptance Testing	**02 Jun 2002**
Fuel Cell Accepted & On Line	**15 Jun 2002**
Commence First Year of Operation	**16 Jun 2002**

Outlook (general comments on overall "health" of project and upcoming challenges):

11. Schedule – All remaining milestone dates were slipped at least one month. This reflects the design challenges still remaining and the uncertainty of the impact from the explosion at the Fuel Cell Energy plant. The new dates are simply a more realistic estimate, as it is unlikely that the fuel cell installation will meet the original schedule. Delays should not be unexpected for R&D projects of this type.

12. Funding – FY02 funding for all contract line items has been committed. However, there is very little extra funding available for potential modifications like an alternate wastewater disposal solution or utility hookup requirements. These will be evaluated on a case-by-case basis, and additional funding sources may be needed.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 30 Nov 2001 – 31 Dec 2001

Accomplishments (during reporting period):

30 Nov – Per the design review meeting on the 29th, the CG sent an e-mail to PPL requesting that PPL validate their original proposal for replacing the existing DHW tank (in Bldg 3159) as part of the installation design.

13 Dec - The CG participated in filming interviews about the project for a public television program. The shoot took place at AIRSTA Cape Cod, and the questions asked were general in nature regarding alternative energy options and why a fuel cell was chosen. This short piece is expected to air at various times on local public broadcasting stations in 2002.

Upcoming Activities (for next monthly period):

29. An updated proposal is expected from PPL for replacing the DHW tank. The CG will then make a decision to modify the contract or not based on funds available.

30. Design work by PPL should be finalized. This effort will include making minor changes and working with NSTAR and the CG to resolve the main issues identified at the Nov 29 meeting. In addition, the drawings and specification will be sent to CG Civil Engineering Unit Providence for review.

31. Fuel Cell Energy continues with production of the fuel cell in their Danbury, CT, facility.

32. CG will try to ascertain the level of FY02 funding that will be available for the project.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be highlighted.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Complete	**16 Jan 2002**
Commence Site Preparation (slab, piping, etc)	18 Mar 2002
Fuel Cell Fabricated, Tested, & Delivered	17 Apr 2002
Finish Site Preparation	19 Apr 2002
Begin Fuel Cell Installation	19 Apr 2002
Complete Fuel Cell Installation	01 May 2002
Startup & Acceptance Testing	02 May 2002
Fuel Cell Accepted & On Line	15 May 2002
Commence First Year of Operation	16 May 2002

Outlook (general comments on overall "health" of project and upcoming challenges):

13. Schedule – Note that the final design has fallen behind the original schedule and the new estimated date for completion is 16 Jan 02. As long as equipment needed for the installation can be ordered by that date, this delay should have minimal impact on the overall project schedule.

14. Funding – FY02 funding levels for all CG units should be known shortly. The overall R&D Center budget is less than expected, but that will not necessarily affect the fuel cell project. The goal is to have a better handle on all FY02 CG funding available by the end of January. The first optional contract line item, which covers 49% of the fuel cell power plant cost, cannot be awarded until sufficient FY02 funds are identified.

3. NSTAR Involvement – The level of NSTAR involvement is still not known, but should come to light as PPL finishes the design. More funding could be required if NSTAR does not agree to pay for some or all of the fuel cell connection to the utility grid.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 23 Oct 2001 – 29 Nov 2001

Accomplishments (during reporting period):

26 Oct – A meeting was held between CG project managers and NSTAR (local electric utility) representatives at AIRSTA Cape Cod. Potential NSTAR involvement in the project was discussed. At a minimum, NSTAR will work with PPL Savage to design the connection for the fuel cell to the grid. The NSTAR reps were also going to check with their senior management about contributing services to the project.

29 Oct – Project marketing and public relations were discussed during a conference call. Representatives from PPL, Fuel Cell Energy, KeySpan, AIRSTA Cape Cod, CGHQ, and the R&D Center participated.

16 Nov – The R&D Center completed writing an article that describes how the funding and contracting for this project was accomplished. This article is planned for the winter edition of the CG magazine "System Times".

20 Nov – The R&D Center distributed a "marketing info sheet" that contains general information about the project and participants.

29 Nov – A design review meeting was held at AIRSTA Cape Cod. Installation design drawings are approximately 90% complete, with only minor revisions needed. The main design issues that still need to be resolved are: 1) Will the DHW tank in Bldg 3159 be replaced? 2) Requirements for connecting fuel cell with the electrical utility grid. 3) Examine possibility of relocating fuel cell hot water drain outside of Bldg 3159.

Upcoming Activities (for next monthly period):

33. Design work by PPL will be finalized to the extent possible. This effort will include making minor changes and working with NSTAR and the CG to resolve the main issues identified at the Nov 29 meeting. In addition, the drawings and specification will be sent to CG Civil Engineering Unit Providence for review.

34. Fuel Cell Energy continues with production of the fuel cell in their Danbury, CT, facility. [Note: Production was reported to be on schedule at the Nov 29 meeting.]

35. A public television program has requested and received permission to film a short piece (mainly an interview) at AIRSTA Cape Cod. Filming is tentatively planned for mid-December.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be highlighted.)

Major Project Milestone	Date
Start Engineering & Design	04 Oct 2001 (Completed)
Design Review Meeting	29 Nov 2001 (Completed)
Final Design Complete	13 Dec 2001
Commence Site Preparation (slab, piping, etc)	18 Mar 2002
Fuel Cell Fabricated, Tested, & Delivered	17 Apr 2002
Finish Site Preparation	19 Apr 2002
Begin Fuel Cell Installation	19 Apr 2002
Complete Fuel Cell Installation	01 May 2002
Startup & Acceptance Testing	02 May 2002
Fuel Cell Accepted & On Line	15 May 2002
Commence First Year of Operation	16 May 2002

Outlook (general comments on overall "health" of project and upcoming challenges):

15. Funding – The status of USCG FY02 funding cannot be confirmed until Congress passes a budget and funding is apportioned to the Federal agencies. This late distribution of FY funds has the potential to adversely impact the project schedule.

2. NSTAR Involvement – Hopefully the level of NSTAR involvement in the project will be determined during December so that plans can be finalized. More funding could be required if NSTAR does not agree to pay for some or all of the fuel cell connection to the utility grid.

Monthly Status Report: USCG Air Station Cape Cod Fuel Cell Project

Report Period: 17 Sep 2001 – 22 Oct 2001

Accomplishments (during reporting period):

17 Sep – PPL Spectrum, Inc. (PPL) receives official notice from the U.S. Dept. of Energy that a $250K grant has been awarded to PPL for this project.

24 Sep – USCG R&D Center (RDC) awards contract to PPL for installation of a 250kw fuel cell power plant at USCG Air Station Cape Cod (ASCC). Line items 001-003, which include part of the fuel cell cost, design of the installation, and the initial site work, have been funded. [Note: PPL ordered the fuel cell from Fuel Cell Energy in Feb 2001.]

25 Sep – RDC sends letter to KeySpan acknowledging their commitment of $100K towards the project and accepting their grant terms.

28 Sep – The grant agreement between RDC and Massachusetts Technology Park Corp (MTPC) is executed. MTPC has committed a maximum of $406K to the project.

03 Oct – Contract kick-off meeting held at ASCC. Because fuel cell production is behind schedule and winter weather rapidly approaching, USCG agrees to PPL proposal to hold off all site work until next spring. A modification is made to the contract and the project schedule is revised (see below) to reflect this change. PPL's design effort officially commences.

18 Oct – PPL and Fuel Cell Energy issue press releases announcing their participation in this project.

Upcoming Activities (for next monthly period):

36. A conference call to discuss project marketing / PR activities has been set up for 29 Oct at 2:00 pm. POC is LCDR Mike Walz - (860) 441-2806.

37. Design work by PPL will continue. The design review meeting is tentatively scheduled for 29 November 2001.

38. Fuel Cell Energy continues with production of the fuel cell in their Danbury, CT, facility.

Project Schedule (Note: The schedule will be shown on each report, and any changes from the previous report will be highlighted.)

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Commence First Year of Operation	16 May 2002

Outlook (general comments on overall "health" of project and upcoming challenges):

1. Funding – With the grants from DOE, MTPC, and KeySpan all confirmed, funding for the project appears to be in pretty good shape. While the USCG has committed to providing the FY02 funds needed for the remaining contract line items, the RDC has contacted the U.S. Dept. of Housing and Urban Development to see if they can provide support through their Housing Research & Technology programs.